

MERITOR WABCO

Operations Manual

Meritor WABCO ABS ECU Aftermarket Programming User Guide

Aftermarket Programming

Aftermarket programming is a method of servicing most pneumatic ABS ECUs. Instead of swapping one fully programmed ECU for another, programmable ECUs can be stocked at the point of service and programmed using a purchased configuration file. The process can be completed in the following steps.

1. Acquire a programmable replacement ECU from Meritor's Commercial Vehicle Aftermarket by calling 888-725-9355.
2. Install the replacement ECU into the vehicle.
3. Acquire a configuration file from <https://meritorwabco.snapon.com>.
4. Load the configuration file into the ECU using Meritor WABCO's TOOLBOX™ Aftermarket Programming application.

NOTE: Aftermarket programming does not change the functionality of the ABS-based safety system as installed in the vehicle.

Before programming the ECU, verify TOOLBOX™ Software version 11.5 or higher is installed on the service computer.

How to Obtain Additional Maintenance, Service and Product Information

Refer to Maintenance Manual MM-0112, Anti-Lock Braking System (ABS) and Electronic Stability Controls (ESC). To obtain this publication or if you have any questions about the material covered in this user guide, please contact the Meritor OnTrac™ Customer Call Center at 866-OnTrac1 (668-7221) or visit our website: meritorwabco.com.

Aftermarket Programming Procedures

Step 1: Acquire a programmable replacement ECU from Meritor's Commercial Vehicle Aftermarket by calling 888-725-9355.

Meritor's Commercial Vehicle Aftermarket will provide the correct aftermarket programmable replacement ECU for the vehicle being serviced. Programmable ECUs are clearly identified with a large orange sticker indicating it must be programmed. Programmable ECUs are also shipped with an instruction sheet explaining how to complete the service operation. Figure 1.

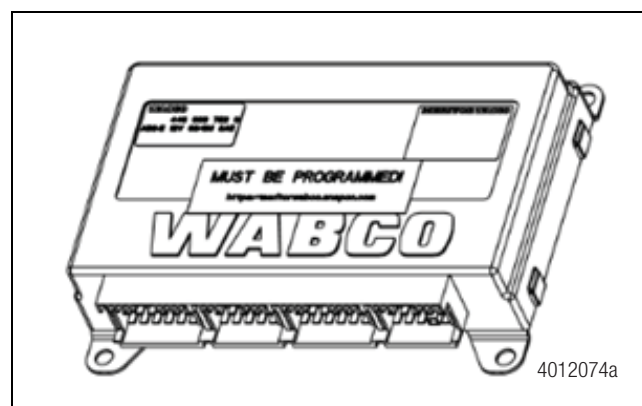


Figure 1

Step 2: Install the replacement ECU into the vehicle.

The programmable ECU should be installed in the vehicle in the same manner and location as the ECU being replaced. Connect all electrical connectors.

NOTE: Aftermarket programmable ECUs are backwards compatible with the ECUs they replace, so there should be no modifications required to either the mounting or electrical connections.

When the replacement ECU is installed, the ABS lamp will be lit due to an active DTC:

| SID | SPN | FMI | Description |
|-----|-----|-----|--|
| 253 | 630 | 2 | Calibration Memory – Wheel Parameter Incorrect |

NOTE: This DTC will clear after a configuration file has been successfully loaded into the ECU. The ABS lamp will remain on until the vehicle has been driven above 4 mph (6 km/h).

Step 3: Acquire a configuration file from <https://meritorwabco.snapon.com>.

Configuration files are available for purchase at <https://meritorwabco.snapon.com>. Begin by either creating an account or logging into an account created during a previous purchase from the site. Figure 2.

NOTE: If you purchased TOOLBOX™ Software, then you already have an account, and that account information should be used to log in.

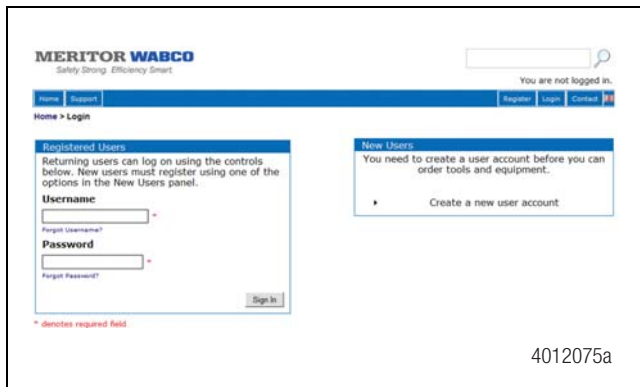
The screenshot shows the Meritor Wabco website's user interface. At the top, there's a navigation bar with 'Home', 'Support', 'Register', 'Login', and 'Contact'. Below this, there are two main sections: 'Registered Users' and 'New Users'. The 'Registered Users' section has fields for 'Username' and 'Password', both marked with an asterisk to denote required fields. The 'New Users' section has a 'Create a new user account' button. A red asterisk at the bottom left indicates that the asterisk denotes a required field. The page number 4012075a is visible in the bottom right corner.

Figure 2

Click the Aftermarket Programming Configuration Files button at the top of the screen. Figure 3.

NOTE: If TOOLBOX™ Software is not available at the point of service, it can be purchased by clicking the TOOLBOX™ Software button.

The screenshot shows the 'Aftermarket Programming Configuration Files' section of the Meritor Wabco website. It features a search bar, a list of categories, and a 'Shopping Cart' icon in the top right corner. The page number 4012076a is visible in the bottom right corner.

Figure 3

Enter the part details for the vehicle being worked on and the part being replaced. Figure 4.

- The VIN must include all 17 characters.
- The part number of the ECU being replaced must be entered.

- The serial number of the ECU being replaced may be entered, but is not required.

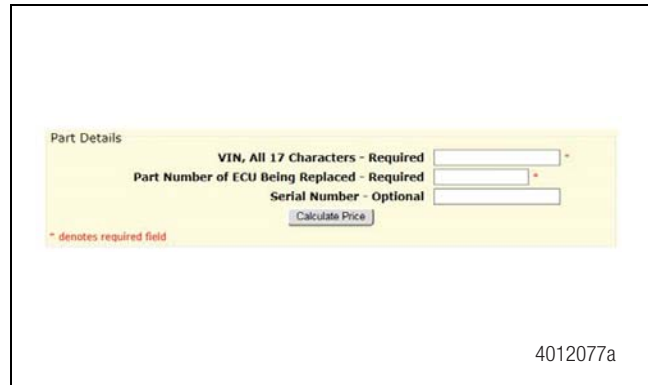
The screenshot shows the 'Part Details' form on the Meritor Wabco website. It includes three input fields: 'VIN, All 17 Characters - Required', 'Part Number of ECU Being Replaced - Required', and 'Serial Number - Optional'. A 'Calculate Price' button is located below the fields. A red asterisk at the bottom left indicates that the asterisk denotes a required field. The page number 4012077a is visible in the bottom right corner.

Figure 4

The next screen will show the details of the configuration file linked to the part number and VIN combination entered. The price for the configuration file will also be displayed. Verify the VIN, part number and details of the ECU functionality match those of the ECU being replaced. If this information is correct, click the Add to shopping cart button. Figure 5.

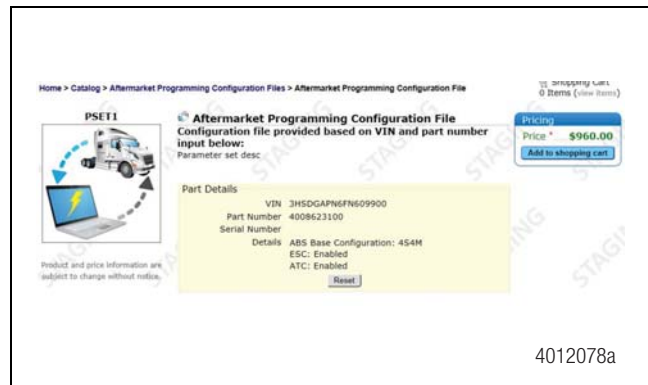
The screenshot shows the 'Aftermarket Programming Configuration File' details page. It displays the VIN (3HSDGAPN6FN609900), Part Number (4008623100), and Serial Number (4008623100). The price is listed as \$960.00. There is an 'Add to shopping cart' button. The page number 4012078a is visible in the bottom right corner.

Figure 5

After the configuration file has been added to the shopping cart, the shopping cart will be displayed. Clicking Proceed to Checkout will step through the configuration file purchase process. Figure 6.

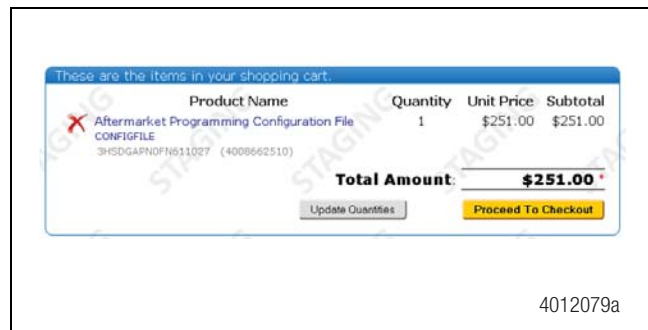
The screenshot shows the shopping cart page. It lists the product 'Aftermarket Programming Configuration File' with a quantity of 1, a unit price of \$251.00, and a subtotal of \$251.00. The total amount is \$251.00. There are buttons for 'Update Quantities' and 'Proceed To Checkout'. The page number 4012079a is visible in the bottom right corner.

Figure 6

The first step in the checkout process is to verify contact information. The information will automatically populate based on login information; all fields can be edited. When the correct contact details are displayed, click Bill to this address. Figure 7.

4012080a

Figure 7

The select payment method screen appears next. Enter the credit card information for the purchase, or select an alternative payment method. Once the information is entered, click Pay by Credit Card.

NOTE: Purchasing the configuration file by credit card is recommended for immediate download of the configuration file. Users of other payment methods may experience a delay while payment is processed. Figure 8.

4012081a

Figure 8

The final screen of the purchase process allows the details of the purchase to be reviewed before placing the order. If all of the information is correct, check the box acknowledging the terms and conditions of the purchase and click Place Order. Figure 9.

4012082a

Figure 9

The order will be processed, and a link to download the configuration file will be displayed. Click the hyperlink to download the configuration file. Figure 10.

NOTE: The link will remain available for seven days. The configuration file download must be completed in that time.

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Figure 10

The following message will be displayed regarding the recommended file storage location. Press OK to continue with saving the file. Figure 11.

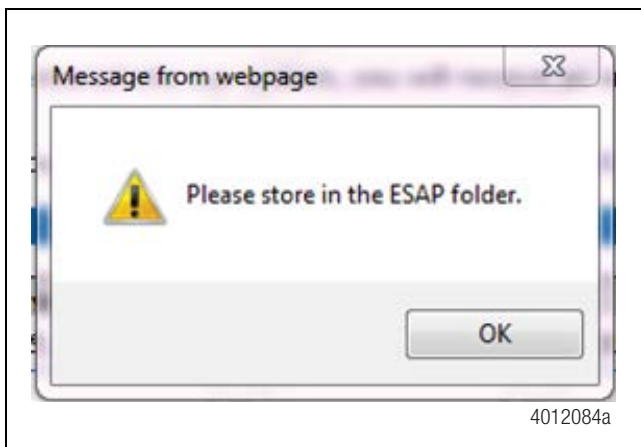


Figure 11

When the following screen is displayed, press Save to continue with saving the file. Figure 12.

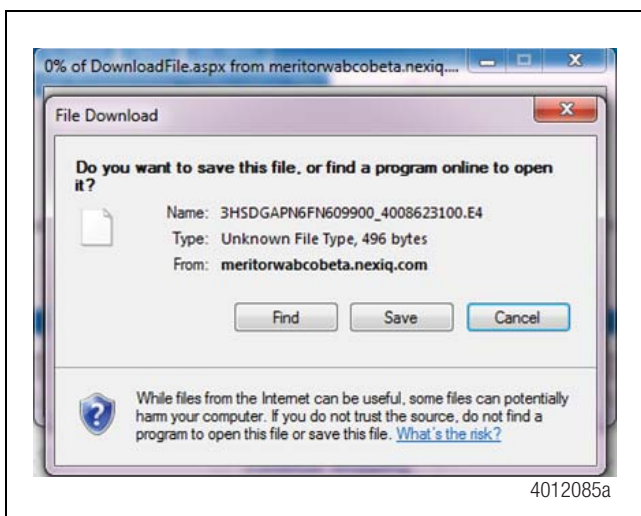


Figure 12

NOTE: Save the configuration file to a location that can be accessed while connected to the vehicle. The Aftermarket Programming application will allow the selection of the file from any location.

Step 4: Load the configuration file into the ECU using Meritor WABCO's TOOLBOX™ Aftermarket Programming application.

Start by connecting TOOLBOX™ Software 11.5 or higher to the vehicle using any J1939 RP1210 diagnostic adapter. Turn the ignition on, open TOOLBOX™ Software, and click the Aftermarket Programming application to start programming the ECU. Figure 13.

NOTE: Wireless diagnostic adapters should not be used for aftermarket programming or any other Meritor WABCO programming operation.

NOTE: It is recommended that aftermarket programming be completed with ignition on only. Do not cycle the key until the programming operation is complete. Verify the battery is fully charged prior to performing the programming operation; the vehicle should not be connected to a battery charger during programming.

NOTE: For complete instructions for using TOOLBOX™ Software, refer to the TOOLBOX™ User's Manual, TP-99102.



Figure 13

A message will be displayed indicating that the ECU will be changed as a result of programming. Click Yes to continue with programming the ECU. Figure 14.

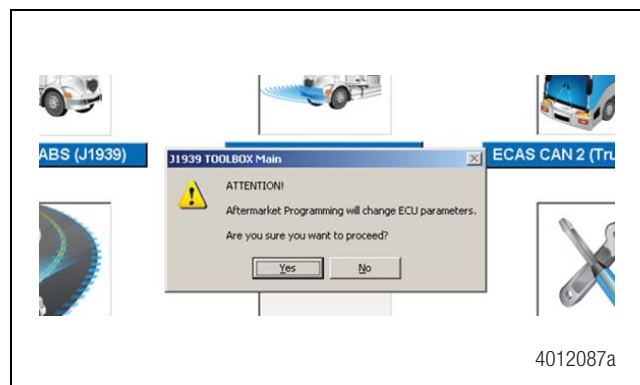


Figure 14

The Aftermarket Programming application will then locate the configuration file. Click OK to select the file. Figure 15.

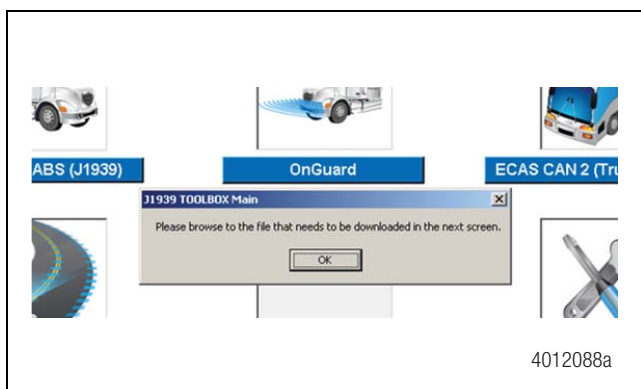


Figure 15

Use the file selection box to locate the configuration file that matches the VIN and part number of the vehicle being serviced. Select the file by clicking on it, and then click Open. Figure 16.



Figure 16

The Aftermarket Programming application will automatically run from this point. The progress of the programming operation will be displayed in the dialogue box. Once ECU programming is successfully completed, a green PASS indicator will appear at the bottom of the Aftermarket Programming application window. Figure 17.

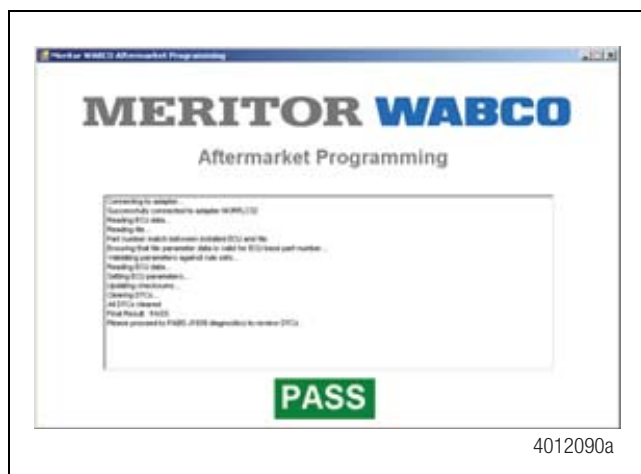


Figure 17

If the programming operation fails for any reason, a red FAIL indicator will appear at the bottom of the Aftermarket Programming application window. Within the text box, an error code will be displayed with instructions. If the programming operation cannot be completed, record the error code and contact the Meritor OnTrac™ Customer Call Center at 866-668-7221. Figure 18.

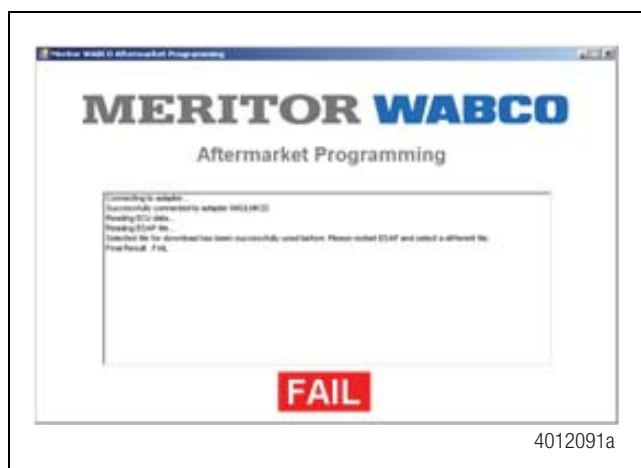


Figure 18

NOTE: ESC ECUs will require the ESC End of Line procedure to be completed following ECU replacement. Refer to the procedure in Maintenance Manual MM-0112.

Aftermarket Programming Failure Codes List

| SID | SPN | FMI | Warning Light | Programming Error Code | Message Displayed | Description/Action |
|-----|-----|-----|---------------|------------------------|--|--|
| 253 | 630 | 2 | ABS WL | None | None | This DTC is active for all programmable ECUs that have not been programmed with a configuration file. Completion of the programming operation will clear this DTC. If this code is active for a non-programmable ECU, refer to the SPN, SID, FMI Fault Codes section in this manual. |
| 253 | 630 | 2 | ABS WL | B1 | Unable to connect to adapter [Adapter Name] (Error: B1). Please exit this window, cycle power and try again. If the problem persists, please contact the Meritor OnTrac™ Customer Call Center at 866-668-7221. | The diagnostic adapter selection does not match the selection in TOOLBOX™ Software or the diagnostic adapter is not capable of J1939 communications. Return to the TOOLBOX main screen. Select Utilities --> Adapter Selection. Select the diagnostic adapter being used from the list of options. |
| 253 | 630 | 2 | ABS WL | B2 | Unable to start diagnostic session with ECU (Error: B2). Please exit this window, cycle power and try again. If the problem persists, please contact the Meritor OnTrac™ Customer Call Center at 866-668-7221. | This failure may occur if communication with the ECU is interrupted during the configuration session. Close the TOOLBOX™ Software, reopen it and restart the aftermarket programming application. If the problem persists, repeat with key on only (IGN off). This failure will also occur when one or more of the following are not connected: Power, Ground, J1939 CAN High or J1939 CAN Low. Check for continuity. |
| 253 | 630 | 2 | ABS WL | B3 | Unable to read ECU Production Data (Error: B3). Please exit this window, cycle power and try again. If the problem persists, please contact the Meritor OnTrac™ Customer Call Center at 866-668-7221. | This failure may occur if communication with the ECU is interrupted during the configuration session. Close the TOOLBOX™ Software, reopen it and restart the aftermarket programming application. If the problem persists, repeat with key on only (IGN off). This failure will also occur when one or more of the following are not connected: Power, Ground, J1939 CAN High or J1939 CAN Low. Check for continuity. |
| 253 | 630 | 2 | ABS WL | B4 | Unable to read ECU Component ID (Error: B4). Please exit this window, cycle power and try again. If the problem persists, please contact the Meritor OnTrac™ Customer Call Center at 866-668-7221. | This failure may occur if communication with the ECU is interrupted during the configuration session. Close the TOOLBOX™ Software, reopen it and restart the aftermarket programming application. If the problem persists, repeat with key on only (IGN off). This failure will also occur when one or more of the following are not connected: Power, Ground, J1939 CAN High or J1939 CAN Low. Check for continuity. |
| 253 | 630 | 2 | ABS WL | B5 | Aftermarket programming configuration file for download not found (Error: B5). | This error will occur if the configuration file is moved or changed during a configuration session. Close the TOOLBOX™ Software, reopen it and restart the aftermarket programming application. If the problem persists, repeat with key on only (IGN off). |
| 253 | 630 | 2 | ABS WL | B6 | Error reading the Aftermarket Programming configuration file (Error: B6). | This failure may occur if communication with the ECU is interrupted during the configuration session. Close the TOOLBOX™ Software, reopen it and restart the aftermarket programming application. If the problem persists, repeat with key on only (IGN off). This failure will also occur when one or more of the following are not connected: Power, Ground, J1939 CAN High or J1939 CAN Low. Check for continuity. |
| 253 | 630 | 2 | ABS WL | B7 | Selected file for download has been successfully used before. Please restart Aftermarket Programming and select a different file (Error: B7). | This failure will occur when a user tries to use a configuration file that has already been used to successfully configure an ECU. Purchase a new configuration file at https://meritorwabco.snapon.com . |

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Figure 19

| SID | SPN | FMI | Warning Light | Programming Error Code | Message Displayed | Description/Action |
|-----|-----|-----|---------------|------------------------|---|--|
| 253 | 630 | 2 | ABS WL | B8 | Module of the Aftermarket Programming file for download is incorrect for this application (Error: B8). Ensure that the Aftermarket Programming file extension was not renamed. Please exit this window and select Aftermarket Programming to try again. | This error will occur if the configuration file is moved or changed during a configuration session. Close the TOOLBOX™ Software, reopen it and restart the aftermarket programming application. If the problem persists, repeat with key on only (IGN off). |
| 253 | 630 | 2 | ABS WL | B9 | Part number of installed ECU [part number] does not match part number of Aftermarket Programming configuration file (Error: B9). Contact the Meritor OnTrac™ Customer Call Center at 866-668-7221. | This failure will occur when the part number in the configuration file does not match the aftermarket programmable ECU part number. Verify that the aftermarket programmable replacement ECU is correct for the ECU previously installed on the vehicle. |
| 253 | 630 | 2 | ABS WL | B10 | This Aftermarket Programming configuration file does not work for this vehicle (Error: B10). Contact the Meritor OnTrac™ Customer Call Center at 866-668-7221. | This failure will only occur when the VIN for the configuration file does not match the actual VIN of the vehicle being serviced. Verify that the VIN used to purchase the configuration file matches that of the vehicle the aftermarket programmable replacement ECU is being installed in/programmed on. |
| 253 | 630 | 2 | ABS WL | B11 | Invalid ECU part number [part number] for programming (Error: B11). | This failure will occur when attempting to configure an ECU that does not require aftermarket programming. Verify the ECU does not require programming and refer to the SPN, SID, FMI Fault Codes section in this manual. |
| 253 | 630 | 2 | ABS WL | B12 | Unable to read parameters from ECU (Error: B12). Please exit this window, cycle power and try again. If the problem persists, please contact the Meritor OnTrac™ Customer Call Center at 866-668-7221. | This failure may occur if communication with the ECU is interrupted during the configuration session. Close the TOOLBOX™ Software, reopen it and restart the aftermarket programming application. If the problem persists, repeat with key on only (IGN off). This failure will also occur when one or more of the following are not connected: Power, Ground, J1939 CAN High or J1939 CAN Low. Check for continuity. |
| 253 | 630 | 2 | ABS WL | B13 | Unable to gain security access to ECU (Error: B13). Please exit this window, cycle power and try again. If the problem persists, please contact the Meritor OnTrac™ Customer Call Center at 866-668-7221. | This failure may occur if communication with the ECU is interrupted during the configuration session. Close the TOOLBOX™ Software, reopen it and restart the aftermarket programming application. If the problem persists, repeat with key on only (IGN off). This failure will also occur when one or more of the following are not connected: Power, Ground, J1939 CAN High or J1939 CAN Low. Check for continuity. |
| 253 | 630 | 2 | ABS WL | B14 | Unable to write VIN to the ECU (Error: B14). Please exit this window, cycle power and try again. If the problem persists, please contact the Meritor OnTrac™ Customer Call Center at 866-668-7221. | This failure may occur if communication with the ECU is interrupted during the configuration session. Close the TOOLBOX™ Software, reopen it and restart the aftermarket programming application. If the problem persists, repeat with key on only (IGN off). This failure will also occur when one or more of the following are not connected: Power, Ground, J1939 CAN High or J1939 CAN Low. Check for continuity. |
| 253 | 630 | 2 | ABS WL | B15 | Unable to write checksum to ECU: Block [block information] (Error: B15). Please exit this window, cycle power and try again. If the problem persists, please contact the Meritor OnTrac™ Customer Call Center at 866-668-7221. | This failure may occur if communication with the ECU is interrupted during the configuration session. Close the TOOLBOX™ Software, reopen it and restart the aftermarket programming application. If the problem persists, repeat with key on only (IGN off). This failure will also occur when one or more of the following are not connected: Power, Ground, J1939 CAN High or J1939 CAN Low. Check for continuity. |

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Figure 20

| SID | SPN | FMI | Warning Light | Programming Error Code | Message Displayed | Description/Action |
|-----|-----|-----|---------------|------------------------|---|--|
| 253 | 630 | 2 | ABS WL | B16 | Communication Error (Error: B16). Please exit this window, cycle power and try again. If the problem persists, please contact the Meritor OnTrac™ Customer Call Center at 866-668-7221. | This failure may occur if communication with the ECU is interrupted during the configuration session. Close the TOOLBOX™ Software, reopen it and restart the aftermarket programming application. If the problem persists, repeat with key on only (IGN off). This failure will also occur when one or more of the following are not connected: Power, Ground, J1939 CAN High or J1939 CAN Low. Check for continuity. |
| 253 | 630 | 2 | ABS WL | B17 | Parameter Incompatibility (Error: B17). Contact the Meritor OnTrac™ Customer Call Center at 866-668-7221. | Close the TOOLBOX™ Software, reopen it and restart the aftermarket programming application. If the problem persists, repeat with key on only (IGN off). |
| 253 | 630 | 2 | ABS WL | B18 | Unable to read memory address before setting parameter (Error: B18). Please exit this window, cycle power and try again. If the problem persists, please contact the Meritor OnTrac™ Customer Call Center at 866-668-7221. | This failure may occur if communication with the ECU is interrupted during the configuration session. Close the TOOLBOX™ Software, reopen it and restart the aftermarket programming application. If the problem persists, repeat with key on only (IGN off). This failure will also occur when one or more of the following are not connected: Power, Ground, J1939 CAN High or J1939 CAN Low. Check for continuity. |
| 253 | 630 | 2 | ABS WL | B19 | VCP program error: ByteToChange for [parameter information] neither 0 nor 1 (Error: B19). Please exit this window, cycle power and try again. If the problem persists, please contact the Meritor OnTrac™ Customer Call Center at 866-668-7221. | This failure may occur if communication with the ECU is interrupted during the configuration session. Close the TOOLBOX™ Software, reopen it and restart the aftermarket programming application. If the problem persists, repeat with key on only (IGN off). This failure will also occur when one or more of the following are not connected: Power, Ground, J1939 CAN High or J1939 CAN Low. Check for continuity. |
| 253 | 630 | 2 | ABS WL | B20 | Unable to write parameter: [parameter information] (Error: B20). Please exit this window, cycle power and try again. If the problem persists, please contact the Meritor OnTrac™ Customer Call Center at 866-668-7221. | This failure may occur if communication with the ECU is interrupted during the configuration session. Close the TOOLBOX™ Software, reopen it and restart the aftermarket programming application. If the problem persists, repeat with key on only (IGN off). This failure will also occur when one or more of the following are not connected: Power, Ground, J1939 CAN High or J1939 CAN Low. Check for continuity. |
| 253 | 630 | 2 | ABS WL | B21 | Error while trying to set parameters (Error: B21). Please exit this window, cycle power and try again. If the problem persists, please contact the Meritor OnTrac™ Customer Call Center at 866-668-7221. | This failure may occur if communication with the ECU is interrupted during the configuration session. Close the TOOLBOX™ Software, reopen it and restart the aftermarket programming application. If the problem persists, repeat with key on only (IGN off). This failure will also occur when one or more of the following are not connected: Power, Ground, J1939 CAN High or J1939 CAN Low. Check for continuity. |
| 253 | 630 | 2 | ABS WL | A1 | Error parsing the Aftermarket Programming configuration file (Error: A1). | Close the TOOLBOX™ Software, reopen it and restart the aftermarket programming application. If the problem persists, repeat with key on only (IGN off). |
| 253 | 630 | 2 | ABS WL | A2 | No parameters were found in the Aftermarket Programming configuration file (Error: A2). | Close the TOOLBOX™ Software, reopen it and restart the aftermarket programming application. If the problem persists, repeat with key on only (IGN off). |
| 253 | 630 | 2 | ABS WL | A3 | Part number is missing from the Aftermarket Programming configuration file (Error: A4). Contact the Meritor OnTrac™ Customer Call Center at 866-668-7221. | Close the TOOLBOX™ Software, reopen it and restart the aftermarket programming application. If the problem persists, repeat with key on only (IGN off). |

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Figure 21

| SID | SPN | FMI | Warning Light | Programming Error Code | Message Displayed | Description/Action |
|-----|-----|-----|---------------|------------------------|--|---|
| 253 | 630 | 2 | ABS WL | A4 | VIN not found in the Aftermarket Programming configuration file (Error: A4). Contact the Meritor OnTrac™ Customer Call Center at 866-668-7221. | Close the TOOLBOX™ Software, reopen it and restart the aftermarket programming application. If the problem persists, repeat with key on only (IGN off). |
| 253 | 630 | 2 | ABS WL | C1 | Mismatch found between installed ECU and the configuration file (Error: C1). | Close the TOOLBOX™ Software, reopen it and restart the aftermarket programming application. If the problem persists, repeat with key on only (IGN off). |
| 253 | 630 | 2 | ABS WL | C2 | [Parameter] Incorrect for installed ECU part number (Error: C2). | Close the TOOLBOX™ Software, reopen it and restart the aftermarket programming application. If the problem persists, repeat with key on only (IGN off). |

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Figure 22

MERITOR WABCO

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